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ABSTRACT

This paper provides an overview of hyperlexia, a condition found in children who have precocious reading skills accompanied by significant problems in language, learning, and social skills. These children are described as having superior auditory and visual memory but seem to have better memory for isolated words than words recalled in context. These children are also described as having non-compliant behaviors, ritualistic behaviors, difficulty with transitions, tantrum behaviors, anxiety, and difficulty in socializing with peers. Diagnostic evaluation for children with hyperlexia is addressed with sample questions for identifying the disability. Components of optimal classrooms for children with hyperlexia include: (1) small classes; (2) a strong language development module; (3) a structured but not rigid class routine; (4) a variety of available behavioral interventions; (5) visual and manipulative aids; (6) opportunities for social interaction with peer groups; and (7) supportive services and support of teacher-aides. The benefits and disadvantages of different types of classroom placements for children with hyperlexia in preschool, kindergarten, and primary grades are reviewed. The paper closes with case examples of nine children with hyperlexia. (CR)

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Hyperlexia

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Chapter I: What is Hyperlexia?

An unusual group of language disordered children with precocious reading abilities is beginning to be Identified by speech and language pathologists, psychologists, and special educators. They are being called hyperlexic. Based on our therapy experiences, we will describe the hyperlexic child, suggest diagnostic methods useful in identifying hyperlexia and describe effectual teaching techniques.

We have seen a group of children with a constellation of symptoms which included precocious reading skills, accompanied by significant problems in language, learning and social skills. We have been struck with the complexity of the problem and the questions it has raised. Hyperlexic children have come to our Center with various diagnoses: autism, behavior disorder, language disorder, gifted. the precocious reading ability was often seen as rote learning, a splinter skill or a savant idiosyncrasy. Or, because comprehension lagged behind, it was frequently disregarded as unimportant. As we began to work with these children, their peculiar language learning style and behavioral concomitant fell into a pattern. Other professionals had encountered children like those but had few answers to our questions.

There is a small body of literature on the topic dating from 1967, but these articles do not necessarily concur on a definition, symptomatology or etiology (see bibliography). Previous investigators have used the term hyperlexia to describe a syndrome which included children who learned to read before the age of 5 with little or no formal training, but who have language disorders and display difficulty in social relationships, Cohen et al (1987) proposed that the primary and essential cognitive deficit in these children is a disorder in speech and language involving a severe deficit in their ability to comprehend language whether it is spoken or written, as opposed to a dyslexia syndrome involving only recognition and/or comprehension of written language. Similarities to development aphasia have been drawn. Richman and Kitchell (1982) describe these children as having superior auditory and visual memory, but they seem to have better memory for isolated words than when words are to be recalled in context. These children have difficulty with categorization and association, and they do not take advantage of syntactic or semantic cues. They seem to be able to receive and store isolated bits of information in a rather rote way, but have difficulty organizing and using the information meaningfully.

In our caseload at the Center for Speech and Language Disorders in Elmhurst, Ill, a suburb of Chicago, we see many children with both language disorders and social interpersonal concerns. From this group we selected those children with a precocious ability to read words. We described the children according to four parameters:

Four Parameters:

1. Precocious reading ability
2. Peculiar language learning disorders
3. Problems in social interpersonal development
4. Developmental histories

Precocious reading ability:

In the area of reading the most important symptom is the precocious ability to decode printed words. This skill was not taught to them by parents. Usually between 18 months and 24 months parents are amazed by the chili's ability to name letters and numbers. By three years they see printed words and read

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them, sometimes before they have really learned to talk. They are fascinated by the printed word.

Peculiar language learning disorders:

Another important symptom is the peculiar language learning disorder evidenced by these children. Of those children who talk (there are also nonverbal hyperlexics) , nearly all have shown a peculiar pattern:

1. Early speech and language attempts were echolalic (both immediate and delayed)
2. Good auditory memory for rotely learned songs, the alphabet and numbers, as well as good visual memory
3. Comprehension of single words (mainly nouns) is better than comprehension of sentences
4. Learning of language in chunks and transferring whole phrases into appropriate places (Gestalt processing)
5. Marked abnormalities in form or content of speech including stereotyped and repetitive speech pronominal reversals: idiosyncratic use of words or phrases.
6. Marked impairment in the ability to initiate or sustain a conversation, despite adequate speech.

Problems in social interpersonal development:

Another constellation of symptoms, some of which may be related to deficits in language comprehension, also are frequent in this group or children. These are associated with social relatedness, pragmatic and behavioral Issues. Almost all the children we have seen have shown these behaviors at one time or another.

1. Non-compliant behaviors
2. Ritualistic behaviors
3. Seif-stimulatory behaviors
4. Extreme need for sameness
5. Difficulty with transitions
6. Tantrum behaviors
7. General anxiety and specific unusual fears
8. Difficulty in groups
9. Difficulty in socializing with peers
10. Sensitivity to loud machine noises
11. Impaired ability to make peer friendships

It is interesting to note that as language comprehension and expression get better, these behavioral symptoms subside. Indeed, some hyperlexic children who come in with behavioral patterns that look quite autistic when they are 2 to 3 years old tend to lose that autistic flavor when their language skills improve. As we develop strategies to help their caregivers make them understand what is wanted or expected, these children become less anxious, more compliant and mere related.

Developmental Histories

In the histories of the children described in our group we identified six items which were most commonly present in the children. This group displayed the following common characteristics:

1. All were males
2. Many had normal development until age 18 months to 2 years and then regressed
3. All developed speech but with abnormal prosody
4. Most had no neurological signs (or only slight signs)
5. All had behavioral, social abnormalities and some self-stimulation
6. All had deficits in language comprehension
7. All read words before the age of 5 and were fascinated by the printed word.

All our subjects in our data are boys. As was noted in other studies, there is a preponderance of males. (Healy and Aram (1986) in their article Hyperlexia and Dyslexia: A Family Study, suggest a possible

genetic link.) We have recently been made aware of several girls who have hyperlexic characteristics. Our second group of children developed little or no speech. Neurological signs were present in these children.

Discussion:

In all the hyperlexic children, there seems to be a visual recognition of "wordness" that may be unrelated to the recognition of the verbal signal. One child would not even attempt to read nonsense syllables since he did not recognize them as words. Another thought it was the funniest thing when he saw "train" was spelled as "trane". Elliot and Needleman (1976) suggest the existence of an innate written language capacity: the ability to recognize a written word as a linguistic symbol as separate from the auditory spoken word.

It is questioned whether all hyperlexic children are 'automatic decoders'. Some hyperlexic children can read anything placed before them, even though they may never have heard or seen those words before, nor do they understand them. They rarely mispronounce even the most difficult words. We also have seen a continuum of abilities, especially before the age of 5. Some children begin as sight readers of familiar words, some are logo readers. Most progress to the point of being able to decode anything. It would be enlightening to understand the process by which a child attains his decoding ability.

Chapter II: Diagnostic Evaluation for Hyperlexic Clilidren: The Speech and Language Evaluation

How do we identify hyperlexic children? The speech and language pathologist encounters these children at different ages and with a wide range of symptomatology. Some are non-verbal and very young, others may be highly verbal. It is important to be able to differentiate these children from others whose language disorders may be related to a hearing loss, mental retardation, emotional disturbance, or autism, The more accurately we can define the nature or the disorder, the more accurately we can design effective teaching strategies. the discussion of the diagnostic evaluation will relate to verbal hyperlexic children, similar to those described in Table I, this discussion will be divided into the traditional categories of History, Observation, Examination, Testing, and finally Diagnostic Impressions and Prognosis.

Five Categories:

1. History
2. Observation
3. Examination and Testing
4. Diagnostic Impressions
5. Prognosis

History

Most diagnostic evaluations start with an in-depth history taking using the parents as informants. There are some questions which you might ask that will help you differentiate the hyperlexic child from other language disordered children.

Your first hint is in the identifying information. The client you are about to see is probably a boy. There are, however, a few girls who have been identified as being hyperlexic.

When beginning the history, first ask the parent to describe why they have come for the evaluation and where else they have been. Have them tell the story of their child and of their concerns. For a hyperlexic child two areas of concern emerge. First is the concern about lack of speech development or the unusual development of speech, Second, the parents have signiticant concerns about their child's behavior. The two primary diagnostic signs of hyperlexia have already emerged, disordered speech and language skills and behavioral concerns. The next question's are:

What does he do that is smart?

Where are his strengths?

Usually two things are mentioned. One is that he seems to learn in a different way from other children but he learns quickly. He learns by watching what is done. The second is that his motor coordination is usually superior. He can run fast and climb almost anything.

If the parents have already hinted that he may be a good visual learner, also ask:

Does he show an unusual interest in numbers and letters?

Is he reading words and sentences?

A. Early Development

Every good history involves gathering information about the early development of the child. Usually the history of a type I hyperlexic child contains no remarkable or significant medical aspects. There is no evidence of mental retardation, the developmental motor milestones are achieved at a normal age. There are no significant head injuries or traumas or illnesses. The usual complications of childhood do occur. There are sometimes ear infections and other mild factors but nothing that would explain the language disorder.

B. Speech and Language Development

A very important part of the diagnosis of hyperlexia is in obtaining information from the parents about the child's communicative behavior. You need to ask parents the right questions in order to obtain this information because traditional developmental questions do not reveal the unique progression that these children follow. The parents usually report that the first words emerged at about 12 mos. of age and that they were the names of favorite Items such as train, car, juice. Words such as Mommy and Daddy, if they are learned, come much later.

They report an intense fascination for numbers and letters and many of their first words are these. Counting and reciting of the alphabet come in early and make the parents feel that their child may indeed be precocious in his early language learning skills. A strong auditory memory is shown in their early memorization of melodies and songs.

An unusual characteristic happens in about half of these children. At 18 mos. of age, they regress. The child may become aloof, non-communicative, and more autistic-like. After about 24 mos. he again begins to improve. We have asked every pediatric neurologist we encounter about this regression between 18 and 24 mos. , but no one has an explanation tor it yet. The other half of the children do not regress. They show a slower than normal development in language skills which follows a peculiar course. This course progresses into echolalia where the child Is memorizing chunks of the language, and idiosyncratic use of words emerges.

Ask the parents:

Are words used differently than you might use them?

Does he use them in a peculiar way?

Does he seem to memorize phrases and play them into situations in which they might not be entirely appropriate?

Also ask:

Does the child's voice seem rather high-piltched and sing song-y?

Does the Child confuse Pronouns YOU and I?

Does the child have difficulty answering questinos that begin with wh- letters such as "where", "who" and "why", even though the parents think he might know the information?

C. Visual Learning

The second area of in-depth history needs to be taken in the area of visual learning, which includes reading.

If he's not yet reading, ask: *"does he show an intense preoccupation with numbers and letters?"*

Also ask: *"What can the child spell?"*

Often this simple question is the most immediate clue to hyperlexia. One 2 -year old child came in and spelled "Ponderosa Steak House" with magnetic letters.

Because these children are visual learners, another important question is: *"What kind of toys does the child play with?"*

Hyperlexic children enjoy visual mechanical toys, and trains are often their favorite. It's not a surprising that "train" is one of the first words they will use.

Another clue is what the child chooses to watch on television: *"Is his favorite show on television 'Wheel-of-Fortune'?"*

It is the Ideal show for a hyperlexic child. It has a large spinning wheel, numbers, letters and words. It also has a very predictable format.

D. Behavioral/Social

The fourth area that must be thoroughly investigated in the history is the area of behavior and social relationships. Some of the most peculiar and distinctive characteristics can be identified with the following questions:

"Does the child have an unusual sensitivity to some loud noises?"

These children seem to be particularly sensitive to loud machine noise. They either hate or have a fascination with the family vacuum cleaner. *"if there are changes in the arrangement of his carefully organized blocks or favorite train, does he show a need to keep things the same?"*

"Does the child know the way to a favorite relative's house? If you take a wrong turn will he protest?"

This is one of the ways these children show their good visual memory.

"'Does the child tantrum? What calms him down?"

Hyperlexic children are rarely calmed by verbal reassurance. Usually distraction, music or returning to their routine helps calm them down.

"Does the child have friends?"

Hyperlexic children usually do not. they allow some children to play next to them, but they rarely initiate relationships or conversation.

"Does the child show some unusual fears about situations?"

"Does the child appear very strong willed?"

Be sure to ask about the child's listening behavior.

"Does he sometimes appear as if he doesn't hear and at other times can he hear very soft sounds (Such as the cookie jar opening in the other room.)?" This selective listening profile is also a characteristic of these children.

E. Summary

The hyperlexic child's history has several unusual points. The developmental motor history is within normal limits and without significant medical complications, the communicative development is unusual. It may involve a regression of speaking between 18 and 24 months. It always Involves learning language through echolalia and having the names of letters and numbers be some of the child's first words. Peculiar characteristics of grammatical development are also typical, including pronominal reversals and idiosyncratic use of words and confusing prepositions. Social and behavioral characteristics are also distinctive.

Observation

The direct examination of the child usually begins with an observation period. While you've been talking with the parents and the child is in the room, you will probably notice that he is very cute and does not show dysmorphic features. He appears to be visually alert. You notice while he is playing with toys that he likes the mechanical ones. Cars, trains and gadgets. He may select number and letter puzzles to do. He may like writing on the blackboard and he may even show interest in reading Logo words such as Fisher Price, which may be on some of your toys. It may also be evident, especially if he is young, that he has a short attention span. He may be very strong willed, and if he does not get his way he will throw a temper tantrum. As you begin playing and relating to him you need to be aware of several guidelines to follow:

1. This child may have difficulty following any verbal instructions. Use visual prompts, point, and show him what to do.
2. If he is very strong willed and capable of significant temper tantrums, go along with some of his suggestions and interests rather than immediately imposing the strict testing environment on him.
3. It is wise to do the visual items of testing first, This is where he will excel and therefore become comfortable in the testing situation before you impose more difficult language items.

Examination and Testing

By the time you have finished the history and the Initial observation of the child, you may already have a pretty good idea as to the child's strengths and weaknesses. But you need more information to accurately determine the level of functioning in three areas:

1. Reading skill
2. His ability to learn visually
3. Language -- both receptive and expressive aspects

1. Reading
   Try to assess the reading skill. If he is reading words, he obviously enjoys this activity and will relax when you present it. Write a few words and see if he can read them. If he reads them easily, make the words much harder. If the child shows the ability to read many words and sentences and paragraphs, then a complete reading evaluation should be done by an educational staff member. The important diagnostic question to be answered is what kind of comprehension does he have of words, sentences, and then paragraphs. When trying to determine some of this informally, remember not to ask wh questions about what he has read. Instead ask him to relate the story or information, or fill in the last word or phrase or your sentence.

- Visual Assessment
  To assess visual learning, a complete psychological evaluation is best. However, the speech pathologist can get some idea of the child's level of functioning. If the child is superior in visual perceptual skills, he may enjoy doing puzzles and can do those better than one would expect for a child his age. Also it is interesting to watch them play with Fisher Price Little People and playhouses, Hyperlexic children generally show a good fine motor ability in manipulating these objects and play with them appropriately. If the child is older, standardized testing can be used. We have found the Visual Decoding and Visual Association Sub-Tests of the Illinois Test of Psycholinguistic Abilities particularly helpful.
- Language -- both receptive and expressive aspects
  Now that you understand that the child needs visual prompts and instructions, at this point he might let you do some testing of his language skills. During previous testing You may have already slipped in some language based questions. You might have given a few strictly verbal instructions and paused briefly before visually showing him what to do. You should also have carefully observed his oral language skills. Did he say the printed words? Did he say the words he wrote? Did he name the play objects? Did he repeat names after you, echoing your model?

For the school age child who has expressive language skills, you have already noticed sentence length and grammatical structure, use of pronouns and any idiosyncratic use or words.

There are many standardized language tests that you can choose from. It is important to evaluate the child's ability to understand and use single words, sentences and paragraphs.

When testing the young child, the Zimmerman Pre-School Language Scale is a useful instrument since it evaluates both receptive and expressive language skills and includes both rote and analytic items. Usually on this test you will find that the receptive and expressive language skills are approximately commensurate but that his rote skills are far superior to the analytic ones.

Other useful tests for children who are 5 years old or older are the Auditory Tests of the Illinois Test of Psycholinguistic Abilities. This test has the advantage of comparing subtests dealing only with auditory skills with those of visual skills. An important diagnostic indication of hyperlexia is that the child functions much better in visual pathways than in auditory ones.

The Peabody Picture Vocabulary Test Revised is an old test that we all use probably much too often. It is useful in evaluating the child's ability to understand single words which are primarily nouns. the Receptive One Word Picture test includes a wider variety of types of words and might be a better indicator of general one word comprehension. The Carrow Test Of Auditory Comprehension of Language is good at assessing the child who can take standardized language tests, but the Carrow Elicited Language Inventory requires that the child echo or repeat the sentences. On this test you would expect the hyperlexic child (who echoes language well) to respond better than he would if he were asked to create these sentences himself. In this way he is different from the average child.

LinguiSystems has some good tests for evaluating language comprehension and associative uses of language for school age children. the Word Test and the Analysis of Language Leaning are both useful tests that evaluate comprehension and usage of sentences as well as single words.

The Language Processing Test includes varying aspects of language such as categorization, similarities, and multiple meaning of words. this test is useful since it relates directly to the lessons described in the Language Processing Remediation book, also published by LinguiSystems. for older children, the Test Of Problem Solving illustrates the difficulties these children may have in answering various types of questions and dealing with inference and abstraction.

Summary

The examination should determine if there is a significant discrepancy in certain areas of performance. In the hyperlexic child, good visual memory and good visual association skills are expected along with a good auditory memory, but auditory processing and expressive language will probably be significantly

lower.

Diagnostic Impressions

When the history and examination information is compiled, the hyperlexic child presents the following characteristics:

1. A precocious ability to read words, far above what one would expect form his chronological age.
2. There is a significant difficulty in understanding language as shown on the standardized tests.
3. Expressive language is learned in a peculiar way. The child echoes and then seems to memorize the outer structure of language without understanding the inner structure completely. This shows up in his idiosyncratic use of words. He has trouble answering who questions such as where, who and why. He exhibits Pronominal reversals and the inappropriate use of pronouns, and misunderstands prepositions.
4. Behavioral concerns: Sometimes there is a regression between 18 and 24 months in the area of language and social development. The child is usually described as a loner. He rarely initiates conversation, appears to be rigid in many of his behaviors, and likes to keep the routines in his life the same. All are strong willed and some show significant temper tantrums.

Many of the characteristics are similar to those learning profiles shown by autistic children, especially high functioning autistic children. The groups may be similar in etiology, whatever that may be. Perhaps hyperlexia could develop into a savant skill if other areas of development were not encouraged. But in terms of developing treatments, strategies and predicting outcome, it is important to identify the hyperlexic child. His needs, although similar in some ways to a high-functioning autistic child, are significantly different and the expected outcomes are much more positive.

There is another group of children who exhibit high visual. skills but who do not read spontaneously and who also show significant language disorders. They can not be considered hyperlexic because they lack the superior reading skills, However, there is an overlapping of symptomatology particularly when you look at the pattern of language development. These children also rely on visual input and they may be able to learn to read quite easily. Often the therapeutic intervention for these children is similar to that of the hyperlexic child.

It should be noted that the diagnosis of hyperlexia does not apply to children who are precocious in reading but who do not exhibit a significant language disorder.

Prognosis

One of the most striking things we have noticed in our experience with these children is that when we first see them at the age of 2 or 2 1/2. they look bad. They are not able to understand language. They may use a few words but often they are echolalic. Their behavior looks autistic. However, we have found that these children emerge out of that autism. Although they may retain some aloofness or antisocial and oppositional behaviors,

Their need to maintain their aloneness and their need to engage in self-stimulating behaviors decreases dramatically as their language comprehension and expressive language improves. By the time they reach first or second grade they certainly would not be described as autistic children, although they may remain somewhat aloof from other children. They can be taught social skills and they do enjoy using them with their newfound friends. Because the eventual success of these children depends on the development of their comprehension and use of language skills, intensive speech and language therapy and special education teaching can help achieve these objectives. It is also important they be taught appropriate social skills and grouping them with children who use appropriate skills is a critical part of the planning.

CHAPTER III IMPLICATIONS FOR SCHOOL PROGRAMMING

Placement

A. Problems:

As hyperlexic children enter schooi programs, the first issue is one of placement. While the hyperlexic child may decode, write and spell at a much higher level than his peers, his comprehension and socialization problems may preclude him from regular education programs. Many special education programs are geared to handle children with more uniform developmental disabilities. Because the language learning style of hyperlexic children is the reverse of normal development and their expression may be higher than their comprehension at some stages, even experienced teachers and therapists may be at a loss as to how to handle them. This discussion will pertain primarily to the largest group of verbal hyperlexic children.

B. Overall Educational goals are to:

1. Facilitate accommodation to school structure and group learning
2. Develop language comprehension and expression
3. Develop alternative learning strategies
4. Develop behavioral issues
5. Develop social interaction with peers

C. Criteria for Classrooms:

Keeping in mind that all classrooms will need to make accommodations in curriculum and programming for the hyperlexic child, the following are some criteria which we have found important in looking for a program:

1. The classes should be small (but not too small).
    - (6-10) Preschool
    - (10-15) Kindergarten or Developmental
    - (18-25) Elementary years (if in regular class)
    - These children need a peer group from whom they can learn but are often overwhelmed by to much input.
    - The small class size is most important as the children first enter school programs. Some have been managed in regular classrooms from kindergarten on.
2. The program should contain a strong language development module.
    - Curriculum for the classroom should include language development both expressive and receptive, written and oral, as well as the development of the use of language which accommodates the learning style of these children.
3. The class routine should be structured but not rigid.
    - These children do best when they can anticipate what is happening next.
    - Because they get so set in routines they need help to accept schedule changes.
4. A variety of behavioral interventions should be available for use. These children may or may not buy into behavioral reward systems. A too rigid behavior modification system may be frustrating.
5. The classroom should take advantage of many visual and manipulative aids. (Many hyperlexic children do well in Montessori classes for this reason).
6. The program should be flexible enough to use reading and rote learned skills even if they are out of order developmentally.
7. The program should contain opportunities for social interaction with an appropriate peer group.
    - The class make-up should be looked at
    - Opportunities for mainstreaming in academics, art, music, gym, lunch and recess
8. Supportive services and the support of teacher-aides should be available
    - Sensori-integration - O.T. is of particular importance
    - Speech/language pathologists should be available for both consultative and direct work
    - Learning disabilities specialist consultation and direct work may help with alternative ways to learn difficult concepts.

D. Types of Classrooms

Hyperlexic children have been placed in a variety of programs. in all placements, parents need to be involved to help staff understand the special needs of their child, demonstrate behavioral strategies, and help child adjust. All placements have advantages and disadvantages.

1. **Preschool:**
   - *Non categorical Early Childhood placement*: This is generally an appropriate placement but is rarely geared to use the reading skill to develop language. Here the hard work of dealing with group, behavioral and language issues is done.
   - *Montessori:* Some children do well In this type of program because the tasks are the types that hyperlexic children generally like. They like the routine, the manipulatives, the emphasis on reading, the various rote learned material, (names of complex shapes, lists of countries of the world or planets.) However, the opportunity for social interaction Isn't as great as children work individually. If there are major behavioral issues, they may not be able to be handled in this setting.
   - *Regular Preschool:* Many hyperlexic children may have trouble with a preschool emphasizing social play, listening to stories (rather than reading them), and group instruction. Class size may also be a problem. Yet, an accepting, nurturing preschool class, may afford socialization opportunities not available In other settings.
2. **Kindergarten Year**
   - *Regular kindergarten:* Some hyperlexic children have made a positive adjustment to regular kindergarten with supportive services and at times with the help of an aide. Adjustments such as giving written as well as verbal instructions, and giving individual as well as group directions need to be made. Class size is often a problem.
   - *Developmental kindergarten:* The smaller class size and more individualized program is helpful for some children. However other children In the class may have difficulties In areas which are strengths for the hyperlexic child. e.g. working on letter recognition or shapes, and there may be too much emphasis on the development of pre-reading skills.
   - *Continuation of Early Childhood Programs:* An extra year of strong language intervention may be helpful. The peer group should be watched and reading based materials need to be introduced into this program to make it work.
3. **Primary Years**
   - *Regular Education:* This is quite possible for some hyperlexic children who have had early intervention on language and behavioral skills. The regular ed. teacher needs to be prepared for it as do the children in the class and the child himself. It is not problem free and support services (itinerant L.D., speech/language and/or O.T.) may be necessary. Parent involvement in tutoring and trouble-shooting is also often necessary.
   - *Communication Disorders Classroom:* With its strong emphasis on language intervention as well as a strong academic orientation, C.D. classes are often quite appropriate for the hyperlexic child. Main-streaming into regular education is often possible and generally there is enough variety in the peer group to include some children with appropriate social skills.
   - *Learning Disabilities Classes:* Some hyperlexic children have done well in L.D. classes where the academic work is highly individualized. They are quite different from the typical L.D. child who has trouble reading, but language and socialization issues can be addressed here.
   - *Behavior Disorders and Emotionally Handicapped Classes:* Because of behavioral Issues, these classes are sometimes suggested, but they are generally inappropriate for the hyperlexic child. Their behavioral problems are integrally related to their language disorder, and once this is addressed, behavior improves.

Problems often encountered in school and suggestions for dealing with them. (P: = Problem -- S: = Suggestion)

A. Initial integration into class-room routine.

P: New situations and transitions are difficult.

S: Provide ample visual information: a. Calendar for the week; b Schedule for the day.

P: Because hyperlexic children have difficulty with auditory processing, explanations and verbal directions are not at first always understood.

S: Set up routine for starting the day. Don't worry about helping the child be flexible. That will come after the child understands what is expected. Let the routine be established to provide a framework for the child to comprehend, then gradually change it. Provide written directions.

CASE ILLUSTRATION A

One child wanted the same school staff member to meet his bus each day. The teacher felt that he should get used to different people, and so it became a problem with the child agitated and upset at the beginning of each day. We suggested letting the routine be established for a few weeks, and then prepare the child in writing for who will meet him at the bus each day. (alternating with favorite person at first, then gradually fading that person)

B. Group instruction

P: Hyperlexic children often do better on 1-1. Because they have reduced eye contact and poor pragmatic skills, they may not realize they are being addressed in a group. Or they may get part but not all of the instruction.

S: Place the hyperlexic child near the teacher and prompt physically and/or visually to listen.

S: Use short sentences for directives.

S: Draw the child into eye contact.

S: Follow up with written instructions.

CASE ILLUSTRATION B

After a semester in regular first grade, the teacher asked the class to write a paragraph about their field trip. One hyperlexic child wrote a wonderful paragraph but it was about a movie he had seen. He had processed only part of the verbal assignment.

C. Language Comprehension Problems

P: Hyperlexic children often appear to have very large vocabularies. They can use words in seemingly appropriate ways. They can make grammatical transformations but when probed, may not truly understand. This is a function of their having acquired language through echolalia or from the outside in, (Berlitz school method of learning language) and of their difficulty in comprehending abstract concepts, idioms, and words with multiple meanings.

S: Check for comprehension by asking child to restate or demonstrate. If he merely echoes or repeats, probe further. give concrete explanation, visual and written definitions and many examples.

CASE ILLUSTRATION C

One child, liked to make his own books in his kindergarten class. They had a title page with copyright and a publisher "Andy Town Books." In one book, he drew a picture of every child in his class,

measured them and assigned each a number. But when asked what it is to measure someone, he looked puzzled, then finally said "How much they weigh?". It was clear he had some idea but not quite the right one.

This child was also clearly worried when his mom said "keep your eye on the pizza".

P: Because of reduced comprehension and difficulty with wh questions, sometimes they may comprehend the concept but may not be able to answer the specific question.

S: Model question answering. Use clone sentences. Use written material to develop language comprehension.

One child, whose decoding ability was at the 3rd grade level, in first grade was kept in the lowest reading group because the teacher felt he didn't understand what he was reading. Part of the difficulty was the structure of the sentences in the early readers, which assume that the child will gain meaning and content from the pictures rather than the text. Another problem was in question-asking protocol.

D. Learning Problems:

P: Hyperlexic children have a learning style which is different from what we normally expect: rote learning comes first, then is applied rote.

S: Expect rote learning and make it OK.

CASE ILLUSTRATION D

One child. was fascinated by all the names of shapes and geometric figures and would repeat them and make you draw them. Months later, when the kindergarten teacher had him look for squares, circles and triangles at home, he showed that he had integrated the rote learned material by identifying the dresser as a rectangular prism" and a ball as a "sphere'.

Another child had trouble getting the idea of adding. To him 2 +1 was 21. In one session, he got the idea if we put dots next to the numbers.

E. Behavioral Issues:

P: Behavioral issues such as talking too loud, inappropriate handling of frustration or non-compliance with requests, and inappropriate attention getting behaviors are common.

S: Write specific rules and post them.

S: Set up Key word signals (settle down or that's enough).

S: Use positive reward system for specific behaviors. Negative reinforcement does not work. This also make the child feel that he is bad.

S: Try bribery with tangible rewards. They may be able to handle working for a reward by accumulating points, but it must be clearly understood.

S: Model for the child appropriate behavior.

CASE ILLUSTRATION E

One child's teacher had a point system and those who accumulated a certain number of points got to participate in a Friday afternoon activity which the teacher called the 'Main Event'. After he had worked

hard to get points, the child came home in tears on Friday. Yes, he had gotten to have pizza but he didn't get 'Main Event'. It took a lot of explaining to help him understand.

F. Social/Emotional Issues:

P: Unusual fears (phobic-like behavior).

S: Try to determine root of fear. Usually it is based on some misconception. Gradually, concretely, peel away layers and desensitize.

CASE ILLUSTRATION F

One child became terrified of going to the grocery store, which he had loved before. With careful probing, it was found that he feared the bats that were hung during Batman promotions, Merely explaining that they were not 'real' didn't work. He had to have more concrete information. Care was taken to show him they were only paper and a step by step story was written.

This fear resurfaced when on Halloween there was a bat on the classroom wall. Again a story was written, this time with the child giving the explanation.

P: Class clown behavior often occurs as the child desires to be noticed by his classmates, yet still has difficulty with social skills.

S: give written guidelines for more appropriate behavior.

S: Move toward verbal humor rather than weird behavior.

CASE ILLUSTRATION G

Two children realized they could make the children laugh by being weird or silly. They love Roger Rabbit and cartoons but have trouble separating certain behavior from real life. One even said 'laughter is powerful'. Another said 'kids like to laugh'. Both needed guidelines for when silliness is OK. Both needed to channel it into more verbal behavior, so we introduced riddles and knock-knock jokes.

P: Egocentricity

P: Difficulty holding conversations or difficulty understanding others feelings and needs.

S: Practice asking questions (interview games). Use activities that develop awareness of others.

CASE ILLUSTRATION H

One teacher observed that one boy often was alone on the playground and wouldn't get picked on teams. Special effort was made to give him the ball to carry outside. When another child was asked why he didn't want to play with the other kids in preschool, he answered 'they mess up the centers!'. He couldn't stand not having things his way. Board games and games with rules often help make the transition from solitary play to interactive play.

P: Participation in group/team activities.

S: Teach games with rules (e.g. board games).

S: Make them the leader of the game.

S: Participate in scouts.

S: Coach on birthday party behavior. We often have parents buy the latest popular toy -- Ghostbusters, Teen-age Mutant Ninja Turtles, etc. They then can talk about what other children do. They need to be tuned in to 'Kid Culture'.

CASE ILLUSTRATION I

One child learned all the dinosaur names. Since it was a hot topic, it allowed him to participate, Another learned karate-he loved learning the names of the moves. These are things that others can recognize as valuable and can form the basis of interaction.

P: Building self-esteem.

P: Developing a talent.

S: if a child has a special interest or talent, be sure to encourage it, and use it for participation.

P: Sharing in show and tell.

S: Help child with show and tell and practice it.

P: Finding one friend.

S: Parents and teachers need to orchestrate friendships at first by providing peer tutoring, invitations to go to movies, etc.

Summary

In many ways, hyperlexic children are like other children with language learning disorders. They are luckier in that they have the reading skill to use as a resource. Certainly the existence of hyperlexia in children brings up questions as to the relationship between reading and language. It is particularly puzzling for parents and teachers who see a child who is 'smart' in one area, yet presents a constellation of social, behavioral and linguistic deficits.

We hope that our discussion on this topic will help you work with these and other children with language disorders.